Names: _____
Chem 227/ Dr. Rusay

Aldehyde and Ketone Enol/Enolate Chemistry

1. Provide products for the following reactions.

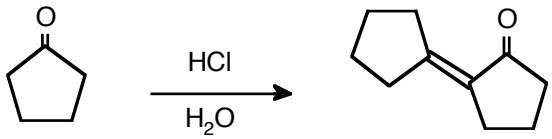
a. $CH_3CH_2CH_2NO_2$ + PhC(=O)H $\xrightarrow[EtOH]{NaOEt}$ $C_{10}H_{13}NO_3$

b. $CH_3C(=O)CH_2CH_2C(=O)CH_3$ $\xrightarrow[H_2O]{\ominus OH}$ C_6H_8O

c. $CH_3CH_2C(=O)CH_2CH_3$ + Br_2 (1 mol) $\xrightarrow{HBr\ cat.}$

d. $CH_3C(=O)Ph$ $\xrightarrow{dil.\ aq.\ HCl\ cat.}$ $C_{16}H_{14}O$

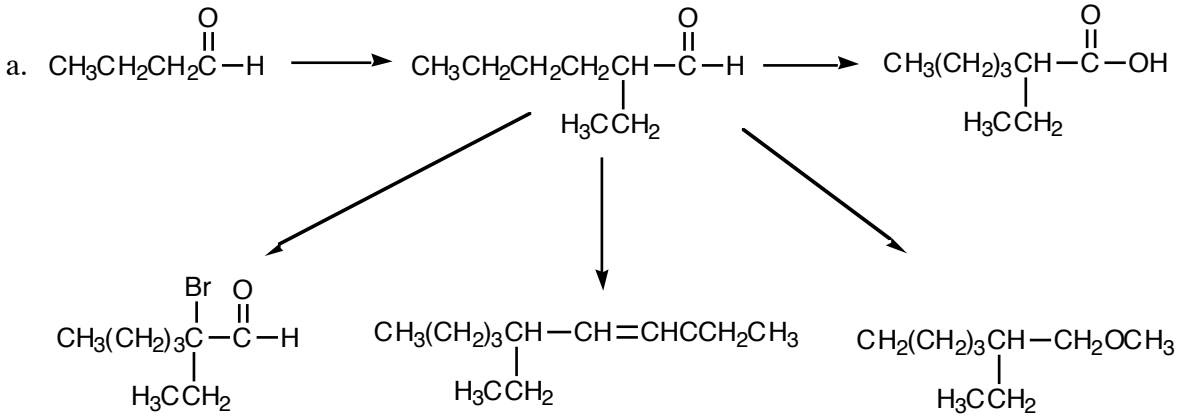
2. Give a reasonable mechanism for each of the following reactions, clearly showing all important intermediates and resonance structures and using curved arrows to show movement of electron pairs.

a. 

b. (*R*)-2-methylcyclohexanone $\xrightarrow[in\ H_2O]{NaOH\ cat.}$ (*R*,*S*)-2-methylcyclohexanone

3. On a separate sheet, show how to carry out the following chemical conversions using any necessary organic and inorganic reagents. More than one synthetic step may be required for a synthetic transformation. Attach the sheet and turn in worksheet.

a.



b.